

WHAT IS CLAIMED IS:

1. A system comprising:

a network system comprising a plurality of network components;

a host computer system coupled to the network system, wherein the host computer system is configured to:

perform system discovery to generate data indicative of a configuration of the plurality of network components;

detect a failure of one of the components included in the plurality of network components;

in response to detecting the failure, calculate an availability of the plurality of network components using the data indicative of the configuration of the plurality of network components; and

store data indicative of the availability of the plurality of network components.

2. The system of claim 1, wherein the host computer system is configured to store data indicative of a risk of the network system being disrupted during one or more exposure periods, wherein the risk depends on the availability of the network system.

3. The system of claim 2, wherein the data indicative of a risk includes data indicative of a probability of the network system being disrupted during each of the one or more exposure periods.

4. The system of claim 2, wherein the data indicative of the risk includes data indicative of an expected number of system failures per a given population for each of the one or more exposure periods.

5. The system of claim 2, wherein the host computer system is configured to compare the risk of the network system being disrupted for at least one of the one or more exposure periods to a threshold risk.

5 6. The system of claim 1, wherein the host computer system is configured to calculate the availability of the plurality of network components by calculating the instantaneous availability of the plurality of network components.

7. A computer readable medium comprising program instructions computer
10 executable to:

receive data indicating a configuration of components included in a network system;

15 receive an indication of a failure of one of the components in the network system;

compute an availability of a network system from the data in response to the failure of the one of the components, and

20 store availability data comprising data indicative of the availability of the network system.

8. The computer readable medium of claim 7, wherein the availability data comprises a table comprising one or more entries, wherein each entry in the table
25 indicates a risk of the network system being disrupted during a respective exposure period, wherein the risk depends on the availability of the network system.

9. The computer readable medium of claim 8, wherein each entry in the table indicates a probability of the network system being disrupted during the respective
30 exposure period.

10. The computer readable medium of claim 8, wherein each entry in the table indicates an expected number of system failures per a given population for the respective exposure period.

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11. The computer readable medium of claim 8, wherein a first exposure time of the one or more exposure times is an estimated time to replace the one of the components that failed.

10 12. The computer readable medium of claim 7, wherein the program instructions are computer executable to evaluate the risk of the network system being disrupted by comparing the risk of the network system being disrupted for at least one of the one or more exposure periods to a threshold risk.

15 13. The computer readable medium of claim 12, wherein the program instructions are computer executable to store an indication of an unacceptably high risk in response to the risk of the network system being disrupted for at least one of the one or more time periods being greater than the threshold risk.

20 14. The computer readable medium of claim 13, wherein the indication of the unacceptably high risk includes an indication of an acceptable exposure period.

15. The computer readable medium of claim 14, wherein the program instructions are computer executable to provide the acceptable exposure period to a monitoring service.

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16. The computer readable medium of claim 7, wherein the program instructions are computer executable to calculate the availability using reliability block diagram analysis.

17. The computer readable medium of claim 7, wherein the program instructions are
30 computer executable to calculate the availability using fault tree analysis.

18. The computer readable medium of claim 7, wherein the program instructions are computer executable to calculate the availability using Monte Carlo analysis.

5 19. The computer readable medium of claim 7, wherein the program instructions are computer executable to calculate the availability using Markov chain analysis.

20. The computer readable medium of claim 7, wherein the program instructions are computer executable to calculate the availability of a group of non-redundant components
10 by multiplying individual availabilities of each non-redundant component in the group.

21. The computer readable medium of claim 20, wherein at least one of the non-redundant components includes a plurality of redundant components.

15 22. The computer readable medium of claim 7, wherein the program instructions are computer executable to compute the availability of the network system by computing the instantaneous availability of the network system.

23. A method of operating a network system, the method comprising:
20 receiving data indicating a configuration of components that are included in the network system;

detecting a failure of one of the components;
25 computing an availability of the network system from the data in response to said detecting; and

storing data indicative of the availability of the network system generated by said
30 computing.

24. The method of claim 23, further comprising storing data indicative of a risk of the network system being disrupted during one or more exposure periods, wherein the risk depends on the availability of the network system.

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25. The method of claim 24, wherein the data indicative of the risk includes data indicative of a probability of the network system being disrupted during each of the one or more exposure periods.

10 26. The method of claim 24, wherein the data indicative of the risk includes data indicative of an expected number of system failures per a given population for each of the one or more exposure periods.

15 27. The method of claim 24, further comprising comparing the risk of the network system being disrupted for at least one of the one or more exposure periods to a threshold risk.

20 28. The method of claim 27, further comprising storing an indication of an unacceptably high risk in response to the risk of the network system being disrupted for at least one of the one or more exposure periods being greater than the threshold risk.

29. The method of claim 28, wherein the indication comprises an indication of an acceptable exposure period.

25 30. The method of claim 29, further comprising providing the indication of the acceptable exposure period to a monitoring service.

30 31. The method of claim 24, wherein a first exposure time of the one or more exposure times is an estimated time to replace the one of the components that failed.

32. The method of claim 23, wherein said computing comprises calculating the availability using reliability block diagram analysis.

33. The method of claim 23, wherein said computing comprises calculating the
5 instantaneous availability of the network system.

34. A system comprising:

a network system comprising a plurality of components;

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means for performing system discovery for the network system, wherein the
means for performing system discovery generate data indicative of a
configuration of the network system;

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means for detecting a failure of one of the plurality of network components; and

means for calculating an availability of the network system from the data
generated by the means for performing system discovery, wherein the
means for calculating an availability calculate the availability in response
20 to the means for detecting a failure detecting that a first one of the plurality
of network components has failed, wherein the means for calculating the
availability store data indicative of the availability of the network system.

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35. A system comprising:

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a network system comprising a plurality of network components;

a first network device coupled to the network system, wherein the first network
device includes a processor and a memory, wherein the first network
30 device is configured to:

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perform system discovery to generate data indicative of a configuration of the plurality of network components;

detect a failure of one of the components included in the plurality of network components;

5 in response to detecting the failure, calculate an availability of the plurality of network components using the data indicative of the configuration of the plurality of network components; and

store data indicative of the availability of the plurality of network components.

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36. The system of claim 35, wherein the first network device is a host computer system.

37. The system of claim 35, wherein the first network device is an array controller.

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38. The system of claim 35, wherein the first network device is a network switch.